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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Qiming Zhu

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EXAMINER

BARTON, JONATHAN A

ART UNIT

PAPER NUMBER

2186

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/726,812	Applicant(s) ZHU, QIMING	
	Examiner Jonathan Barton	Art Unit 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "a physical device object" is used twice and appears to refer to a different "physical device object" in each case. Clarification is needed (ie. In line 4 change "a PDO" to either "a second PDO" or "the PDO").

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed *objects* refer to software devices, but no physical embodiment is given to these software devices.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-10, 13, 15-19, 21-24, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Lu (2004/0073747).

a. As for claim 1 Lu discloses

- i. A RAID class driver having a physical device object (Par. 13, lines 1-5)
- ii. representing a RAID system comprised of a plurality of disks (Par. 13 lines 1-5),
- iii. each disk associated with a functional device object (Par. 13 lines 9-12)
- iv. adapted to interface with a physical device object representing the disk (Par. 12 lines 5-10) and
- v. providing a RAID-specific device identification (Par. 18 lines 3-5).

b. As for claim 2 Lu discloses

- vi. The physical device object providing a RAID-specific device identification is included in a disk controller driver adapted to interface with a disk controller (Par. 42 lines 5-11).

c. As for claims 3 and 16 Lu discloses

- vii. The physical device object representing the RAID system is adapted to provide a standard disk device identification to an operating system (Par. 37).
- d. As for claim 4 Lu discloses
 - viii. The RAID class driver is adapted to combine each disk into a RAID system (Par. 33).
- e. As for claims 5 and 17 Lu discloses
 - ix. In response to receiving a request to write a data block to RAID system, the RAID class driver is adapted to mirror the data block on at least a portion of the plurality of disks via the associated functional device objects (Par. 8, Par. 35).
- f. As for claims 6 and 18 Lu discloses
 - x. In response to receiving a request to write a first and second data block to RAID system, the RAID class driver is adapted to write via the associated functional device objects the first data block to a first portion of the plurality of disks and to write via the associated functional device objects the second data block to a second portion of the plurality of disks (Par. 7 & 9, Par. 35).
- g. As for claims 7 and 19 Lu discloses
 - xi. In response to receiving a request to write a first and second data block to RAID system, the RAID class driver is adapted to write via the

associated functional device objects an error correction block to a portion of the plurality of blocks (Par. 9 & 10, Par. 35).

h. As for claim 8 Lu discloses

xii. The physical device object representing a RAID system is a child of a RAID controller functional device object adapted to interface with a RAID controller physical device object (Par. 23).

i. As for claims 9 and 21 Lu discloses

xiii. The RAID class driver is adapted to configure the physical device object representing a RAID system according to RAID configuration data stored in a computer system configuration memory (Par. 18, 42).

j. As for claims 10 and 24 Lu discloses

xiv. A first portion of the plurality of disks is associated with a first disk controller of a first type and a second portion of the plurality of disks is associated with a second disk controller of a second type (Par. 31).

k. As for claims 13 and 27 Lu discloses

xv. The second type is a controller for an external disk (Par. 32, lines 12-15).

l. As for claim 15 Lu discloses

xvi. A RAID controller adapted to induce an operating system to load a RAID class driver having a physical device object representing a RAID system comprised of a plurality of disks (Par. 13, lines 1-5);

- xvii. A first disk controller adapted to interface with at least a portion of the plurality of disks and further adapted to induce the operating system to load a disk controller driver (Par. 12 lines 5-10),
- xviii. Wherein the disk controller driver is adapted to provide RAID-specific device identifications for the portion of the plurality of disks (Par. 18 lines 3-5).
- m. As for claim 22 Lu discloses
 - xix. Adapted to interface with a second disk controller, wherein the second disk controller adapted to interface with at least a second portion of the plurality of disks and further adapted to induce the operating system to load a second portion of the plurality of disk and further adapted to induce the operating system to load a second disk controller driver (Par. 31),
 - xx. wherein the second disk controller driver is adapted to provide RAID-specific device identifications for the second portion of the plurality of disks (Par. 42).
- n. As for claim 23 Lu discloses
 - xxi. Including a second disk controller adapted to interface with at least a second portion of the plurality of disks (Par. 31) and
 - xxii. further adapted to induce the operating system to load a second disk controller driver (Par. 31, 32),

xxiii. wherein the second disk controller driver is adapted to provide RAID-specific device identifications for the second portion of the plurality of disks (Par. 42, 18).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 11, 12, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (US 2004/0073747) in view of Frank et al. (US 2004/0160975).

o. As for claims 11 and 25 Lu discloses the depended upon claims 10 and 24 and also discloses using various types of controllers for the first and second controllers, such as an SCSI controller (Par. 31, 32), but fails to specifically disclose an EIDE controller.

p. Frank et al. teach an EIDE controller (Par. 7). It would have been obvious to one of ordinary skill in the art to have used the EIDE controller taught by Frank et al. in the RAID control system of Lu because both inventions involve methods of controlling a RAID system using various controller and disk types and the EIDE taught by Frank et al. is an improvement over the standard IDE disclosed by Lu.

q. As for claims 12 and 26 Frank et al. teach

xxiv. The first type is a serial ATA type controller and the second type is a parallel ATA type (Par. 7).

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (US 2004/0073747) in view of Gajjar (US 5,787,463).

r. As for claim 20 Lu discloses the depended upon claim 19, but fails to specifically disclose

xxv. The integrated circuit is adapted to determine the value of an error correction block from the first and second data block.

s. Gajjar teaches this (Col. 4 Lines 5-9). It would have been obvious to one of ordinary skill in the art to combine the error correction method of Gajjar with the RAID/parity method of Lu because Lu already utilized a parity error correction method and the method of Gajjar is a common method of calculating this parity information.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (US 2004/0073747) in view of Brantley Jr. et al. (US 5,163,149).

t. As for claim 14 Lu discloses the depended upon claim 1 but fails to disclose

xxvi. The RAID class driver is adapted to optimize data access by combining separate data access operations associated with a disk of the RAID system into a single data access operation.

u. Brantley Jr. et al. teach this (Col. 1 Lines 24-29). It would have been obvious to one of ordinary skill in the art to have combined the access

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combination of Brantely Jr. with the RAID control system of Lu because both systems involve access to a memory and the combined access method improves the access time (Brantley Jr. Col. 1 Lines 32-39).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Barton whose telephone number is 571-272-8157. The examiner can normally be reached on Monday - Friday 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JB

Jonathan Barton
Examiner
Art Unit 2186


MATTHEW KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER

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